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THE

Journal of the Society of Arts,

AND OF

THE INSTITUTIONS IN UNION.

110TH SESSION.]   FRIDAY, DECEMBER 25, 1863.   [No. 579. VOL. XII.

Announcements by the Council.

ART-WORKMANSHIP.

The works submitted in competition for the Prizes offered by the Society have been removed to the South Kensington Museum, where they will remain for the present.

EXAMINATIONS.

Secretaries of Institutions and Local Educational Boards, are particularly requested to forward to the Secretary of the Society of Arts, as soon as possible, detailed lists of each Local Board as arranged for next year, specifying the chairman and secretary, and including the addresses of the members. In cases where the Board remains the same as last year, this should be notified without delay.

The Christmas subscriptions are now due, and should be forwarded by cheque or post-office order, made payable to the Financial Officer, Samuel Thomas Davenport. All cheques and post-office orders should be crossed through Messrs. Coutts and Co.

Proceedings of the Society.

STATISTICS OF MODEL DWELLINGS.

The following is an abstract of papers lately laid before the Council of the Society of Arts, by Mr. T. Twining, in reference to the inquiry into the statistics of Model Dwellings and other analogous establishments, which he had been authorized to make with a view to prepare a secure basis for future undertakings of this kind, and thereby to induce large investments of capital in this direction.

By means of blank forms, showing in detail the nature of the information required, returns have been obtained concerning the following self-supporting establishments in the metropolis, accompanied in several instances with valuable remarks.

LABOURER'S FRIEND SOCIETY.

(Returns have been supplied by Ch. Payne, Esq., Secretary, 21, Exeter Hall.)

The Model Lodging-house in George-street, Bloomsbury, for 104 single men. Opened in 1847.

The Model Building in Streatham-street, Bloomsbury, for 54 families. Opened in 1850.

The Thanksgiving Buildings in Portpool-lane, Gray's Inn-lane, for 20 families and 128 single women, with a public washhouse. Opened in 1851.

The Hatton-garden Chambers, existing house adapted for 54 single men. Opened in 1849.

The Model Lodging-house, Charles-street, Drury-lane, ordinary London house (originally consisting of three tenements) adapted and improved as lodgings for 82 single men. Opened in 1847.

The improved dwellings in Wild-court, Drury-lane, 13 renovated houses, 106 rooms. Opened in 1855.

The improved dwellings, Clark's-buildings, Broad-street, St. Giles's, 11 renovated houses, accommodating about 80 families. Opened in 1856.

Tyndall's Buildings, Gray's-Inn-lane. Renovated houses accommodating 88 families and 40 single men. Also two houses, 26 and 27, Gray's-inn-lane. Opened 1857.

METROPOLITAN ASSOCIATION.

(Returns have been supplied by Charles Gatliffe, Esq., Secretary, 19, Coleman-street, E.C.)

The Model Building in St. Pancras-square, Old Pancras-road, for 110 families (420 rooms). Opened Dec., 1847.

The Metropolitan Buildings, Albert-street, Mile-end New-town, 60 families (234 rooms). Opened May, 1850.

The Ingestre Buildings, New-street, Golden–square, for 60 families (224 rooms). Opened in December, 1854.

The Model Dwellings, 21 and 22, Albion-buildings, Bartholomew-close, Aldersgate-st. Renovated houses for 20 families (40 rooms). Opened Jan., 1855.

The Model Building, Nelson-square, Nelson-street, Bermondsey, 108 families (408 rooms). Opened July, 1855.

The Albert Cottages, Albert-street, Mile-end New-town, for 33 families. Opened in August, 1858.

The Metropolitan Chambers, Albert-street, Mile-end New-town, for 234 single men. Opened Dec., 1849.

The Soho Chambers, 36, Old Compton-street, for 128 single men. Opened in March, 1851.

MARYLEBONE ASSOCIATION.

(Returns have been supplied from the Office.)

The Christchurch Buildings, Little James-street, Lisson-grove, for 31 families. Opened in 1855.

The Stafford Buildings and Stafford Cottage, Stafford-street, for 19 families. Opened in 1858.

The Lisson Buildings and Cottages, Lisson-grove North, for 28 families. Opened in 1858.

The renovated dwellings, Nos. 16 and 35 to 38, Charles-street, Lisson-grove, for 25 families.

The Gray's Buildings, Duke-street, Manchester-square, renovated houses, accommodating 159 families, and gradually acquired from 1855.

(Returns for the following have been supplied by H. A. Darbishire, Esq., Architect and Honorary Secretary to the Trustees of the Peabody Fund, 4, Trafalgar-square.)

Columbia Square, Charles-street, Hackney-rd., Bethnal-green, for 183 families (390 rooms). Opened 1858.

Rochester Buildings, Duck lane, Old Pye-street, Westminster, for 168 families. Opened in May, 1862.

(Returns for the following have been obtained by personal inquiry.)

The Building near the Shadwell-station, for 112 families.

The Dwellings in Grosvenor-mews, Hanover-square, for 32 families.

The Albion Chambers, Dean-street, Soho, ordinary London house adapted for about 45 single men.

The Lodging House (now discontinued) at Camden-town, formerly belonging to Messrs. Pickford and Co.

The Dormitory, Dudley-street, St. Giles's, for 24 girls. Opened in 1858.

The Leicester-square Soup Kitchen and Refuge, Ham-yard, Great Windmill-street.

(Returns for the following have been supplied by Miss E. Twining.)

The Working Men's Coffee House, 46, Portugal-street, Lincoln's-inn.

(Returns for the following have been supplied from the Office.)

St. Marylebone Public Baths and Wash-houses, 181, Marylebone-road. Opened 18th of December, 1849.

In order that the important evidence which has been obtained may be speedily completed, and reduced into a shape which may render it a convenient means of guidance for future undertakings, a special committee has been appointed, consisting of the Hon. and Rev. Samuel Best, M.A., Mr. Samuel Gregson, M.P., Mr. Chandos Wren Hoskyns, and Mr. Thomas Twining, Members of Council, with Mr. H. M. Eyton, architect of the Model Dwellings erected at Hull by the Labourer's Friend Society, who has consented to act as honorary referee, and Mr. George Rigby, who has kindly undertaken the office of reporter. The last-mentioned gentleman is now engaged in classifying and collating the information in hand, and in personally obtaining some desirable additions. Members who can undertake to supply returns of any model dwellings, or other buildings for the use of the working classes in the metropolis and suburbs, not included in the above enumeration, are requested to communicate with the secretary of the Society of Arts, who will forward blank forms and explanatory circulars. Equally acceptable would be any communications as to the merits, or demerits of any of the establishments above enumerated, derived from personal and impartial observation, or any general information or remarks suggested by the following memorandum :—

SUBJECTS FOR ENQUIRY IN REFERENCE TO MODEL DWELLINGS AND OTHER ACCOMMODATION FOR THE WORKING CLASSES IN THE METROPOLIS AND SUBURBS.

FINANCIAL ASPECT.

Evidence of financial success or failure, and of the causes which may have chiefly contributed thereto, whether in the designs, the materials used, the more or less happy adaptation to the wants and notions of the class for whom the building is intended, the regulations and management, &c.

Presence or absence of desirable accessory advantages provided for the tenant by the landlord, *e.g.*, water supply, the use of a laundry and drying ground, of baths, of accommodation for household stores, of a hoist, &c.

Building contrivances, or special materials which have been found to diminish certain items of yearly expenditure, such as repairs, rates, insurance, &c.

Average return obtained for capital invested in the erection of dwellings of the old style, and of an inferior class in London.

Estimated amount of interest to be expected from capital invested on a large scale, in supplying the working classes of the metropolis with improved family dwellings, chambers, and other desirable accommodation. State what economic and sanitary conditions or regulations and management are contemplated in these estimates, as essential features.

Results obtainable from appropriating to shops the ground floor of model buildings in populous localities.

SANITARY AND SOCIAL ASPECT.

Remarks as to the sanitary features, and more or less cleanly and well regulated condition of urban and suburban model or renovated buildings.

Statistics of death and disease, as far as they can be fairly assumed to have been influenced by the condition of the establishments themselves, rather than by extraneous or fortuitous causes.

Expedients as to wall-surface, flooring, furniture, &c., which have been found conducive to a healthy condition of the dwellings.

Materials and contrivances which have been found efficient, convenient and cheap, for rendering a building fireproof, or for facilitating the escape of the inmates from the higher stories, *e.g.*, avoidance of timber work, external gallery system.

Authentic indications of moral and social improvement effected by dwellings reform.

MISCELLANEOUS CONSIDERATIONS.

Advantages and drawbacks of the external gallery system.

Financial and economic results obtainable from combining in populous streets: 1. A row of shops on the ground floor. 2. Entresol apartments attached thereto. 3. A superstructure on the external gallery system, the galleries being, according to circumstances, at the front or back of the building. 4. Well-lighted and ventilated work-rooms, or bathing and laundry accommodation. 5. A terrace roof to serve as drying ground.

Co-operative stores, reading rooms, penny savings' banks, and other desirable accessories of large model establishments or *cités ouvrières*.

Comparison of the results respectively obtained by the erection of new buildings and by the adaptation of existing ones, as regards in the first case sanitary and economic advantages, and in the second case the facility and rapidity of the operation, the diminished outlay and the increased return.

What are at the present time the most urgent wants of the working classes in the metropolis, as regards family dwellings, furnished accommodation for families, lodging-houses for single men or for single females, dormitories for boys, &c.

Under what circumstances and in what localities may the *adaptation* of existing houses be adopted as a means for meeting these urgent wants.

What facilities, in the way of eligible sites, convenience of locomotion, or other advantages for the erection of *new* buildings for the working classes on a large scale, exist at present in the metropolis or suburbs, or are likely to arise in connection with the projected metropolitan improvements and railway extensions.

What financial combinations may most effectively and safely promote extended investments of capital for the benefit of the working classes, *e.g.*, limited liability companies, co-operative building societies, improved system of mortgage, &c.

Existing or proposed arrangements for so regulating the rentals, that after a certain number of years a working man may become proprietor of the cottage which he inhabits.[*]

Difficulties with regard to the collecting of rents, which have in several instances been an obstacle to the success of model buildings, and have led to the entrusting of their collection to a contracting agent.

Best means for enforcing punctual payments as a rule, without precluding leniency as an exception.

Comparison between the results obtained by quarterly and weekly tenancies.

Regulations and difficulties concerning the sub-letting of family dwellings.

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[*] The following is an extract from a letter to Mr. Twining, from James Hole, Esq., dated Leeds. 11th May, 1863 :—"We are not only making improved dwellings, but enabling working men to become the owners on very easy terms. By finding a fifth of the cost of the house, and paying the same rent he has been accustomed to pay for an inferior dwelling, a working man become his own landlord in 13 years."

Desirable additions to existing legislative enactments, *e.g.*, The Lodging House Act.

Legal enactments or parochial regulations calculated to favour the superseding of unsatisfactory by improved dwellings, *e.g.*, assessment of dwellings on the external gallery system as distinct houses. Assessment of the rates on the net instead of the gross rent in blocks of dwellings (each dwelling being under a certain rental) where the rates are paid by the landlord and not by the tenant; remissions for the first three years of certain rates on dwellings affording a given amount of accommodation under a given rental, and which shall have been satisfactorily reported on by the surveyor and medical officer of the district, or by other authorised inspectors.

Various expedients with regard to building designs and materials, management, private patronage, and government subventions, which have proved successful in other countries.

Very few returns have as yet been obtained from provincial towns and agricultural districts, but it is intended to direct special attention to this part of the inquiry, when that referring to the metropolis shall be more advanced. In the meantime any contributions of local information, or the addresses of persons to whom forms should be sent, would be very acceptable, as also reports of the progress of dwellings reform in other countries.

Proceedings of Institutions.

SOUTHERN COUNTIES ADULT EDUCATION SOCIETY.

The following paper, "On Giving an Artistic Turn to the Leisure Hours of the Labourer's Home," by W. Wallace Fyfe, Esq., of Charminster, Dorset, was read at the annual meeting of this Society, held at Devizes:—

A casual glance at Miss Jane Mill's lately published illustrations of "Kinder-Garten Educational Employment and Amusements,"* appears to suggest a cheap, an easy, and an interesting accession to those home and household attractions by which the cottage hearth may be made to rise superior to the enjoyments of the beer-house. For although, as we all know, the German Kinder-Garten amusements are intended for very young children, it will be found, on looking more narrowly into the artistic tendencies of some or most of them, that there are two or more grounds on which it may be desirable to press them into the domestic training service, for use in the long winter evenings, and all other intervals between work and slumber that occur in the dull routine of the cottager's existence, which they may thus be made to vary. In the first place, they may well be recommended in order to engage the adults' attention, not only with a view to occupy and develop their ingenuity and taste (which they would do unconsciously), but primarily for the purpose of enabling them to instruct and entertain their children, with an ultimate tendency to stimulate the growth of similar taste and ingenuity in the children. In the second place, they may equally well be adopted as a means of culture and refinement amongst the rustic families, who, in proportion as their crudities are corrected in a manner interesting to themselves, will learn to love and recognise everything they now ignore that is graceful and elegant.

1. Our German neighbours are in all respects an example to us and to the world in their treatment of children. The German Christmas-tree, with its wondrous crop of family surprises, is perhaps the best illustration of the delightful feeling of domestic happiness which the attention bestowed by the adults on the little people is calculated to produce. The mode in which the pleasure of the smallest individual is made a special study, and the sense of no one being forgotten, generates self-respect, mutual kindness, and lays the foundations of personal character on an elevated basis. Much of this is wanting amongst the more boorish of our own rural population, and even the best and worthiest of our labourers and their wives think it much if they keep their children neat and clean, perhaps well-dressed, and give them a little schooling; such a thing as household culture is rarely thought of. The sort of pursuits which, on the model of the Kinder-Garten system of Frödel, might be made available for rendering every cottage hearth in England a magnet of interest and improvement for old and young, include, as we shall presently see, modelling—what is termed pea-work—paper-folding, cutting and plaiting, and finally drawing and writing; all of which in the elementary way in which they will immediately be presented, will be found eminently calculated for being carried out with facility. Now, to say nothing of the well-known laws of mental and physical relaxation which would be subserved by the introduction of these things, which Miss Mill tells us Madame Bertha Rouge has carried out to admiration in mere infant schools in this country, and which are, much more, therefore, capable of being developed in the family circle, there are principles of utility involved directly and indirectly in every attempt to give an artistic turn to the work of man's hands, the benefits of which we need hardly stay to demonstrate. It was noticed, at the unpacking of the goods for the first Exhibition of 1851, that the French artizan possessed an artistic training of such a nature that if a leaf or a fragment of ornament chanced to be broken or deranged, he could immediately remodel and probably replace it in plaster materials; whereas, I have actually seen an upholsterer's man, who had engaged to remove carved goods in safety, resort slyly to the expedient of knocking off a gold leaf or two on one side of a moulded frame, to correspond with the damage that had been accidentally done to the other.* By familiarising our common people in any degree with an artistic facility of handling fine or beautiful work, we shall gain many advantages. We shall, first of all, give them a taste for what is excellent in art, an appreciation of the beautiful, a desire to execute any task that may fall to their lot in a more tidy and elegant manner than would otherwise be dreamed of; and above all, if any latent talent may be lurking in the untutored genius of the obscure and low-born swain, we open up a chance of calling it forth, of exercising it, and putting it on the road to actual renown. That we are far behind all other civilised people in works of ordinary ingenuity and art, was known and felt so long back as the wars of the French Revolution; for we have in all those parts of the country where depôts for French prisoners existed, traditions of the pleasing and surprising ingenuity and taste displayed by those sufferers from the fortune of war, who found it necessary to resort to the exercise of the arts with which they were acquainted to raise a little money. Give a French prisoner a piece of bone, or other seemingly worthless material, and he would forthwith proceed to elaborate it into "a thing of beauty and a joy for ever;" and many of the prison depôts in this country were in those times perfect bazaars of fancy articles fabricated out of nothing by the ingenuity of the captive Gauls. Instances are not wanting amongst ourselves which show, however, that the same or similar capacities exist amongst the people could they be but stimulated into action. The crowds of visitors to the Channel Fleet, in its late aquatic ovation round our island shores, were more than a little astonished, for instance, to find Jack, in many instances, an adept at the tambour-frame, and accomplished in embroidery so as to be able to execute a banner-screen with any lady in the land. And no one can have forgotten the cork model of Lincoln Cathedral, which, in the Architectural Gallery of the late International Exhibition, attested so well the artistic ability of the self-taught workman by whom it

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* London: Darton and Hodge, 58, Holborn-hill.

* Fact—It happened to myself.

was constructed, after many years of leisure labour, that since the close of the Exhibition he has raised a profit of £800 by exhibiting it, and has built himself two cottages of a more enduring kind with the proceeds, proudly inscribing them

> "Perseverance, cork, and glue,
> Eighteen hundred and sixty-two."

2. On the second head, I need say nothing more than that art is known as the great humaniser alike of high and humble life; before its acknowledged triumphs men hold their breath and gloat in admiration; the success of its humblest efforts gives joy and satisfaction to the heart, as if the proudest achievement of the human mind were the right direction of man's hands.

Now, then, let us consider what can be done in detail to realise some part of this programme of rural felicity? To begin with modelling:—

"The first occupation which we shall notice," says Miss Mill, "is modelling; and as we endeavour to make the simplest materials serve for these employments, so that they may be within the reach of children of any class of society, we usually use for this purpose *terra cotta*, or modelling clay, a large piece of which can be obtained for sixpence of any modeller. Or, in the country, where this cannot be obtained, we have taken a lump of common red clay, washed and passed it through a coarse cloth, so as to separate from it the small particles of stone, then have put the jar which contained the liquid clay into a warm oven, until the water had evaporated so far as to leave it of a proper consistence to model with. This is a dirty and very troublesome process, and we only recommend it in cases where nothing else can be obtained for the purpose. This and the modelling clay is more easily worked than any other substance we know of; it has, however, the disadvantage of making the hands dirty, and of being liable to break as soon as the model is dry, as the clay in this state is exceedingly brittle. Another substance, which has neither of these disadvantages, is ground rice properly prepared. This may be a little more difficult to model with than clay for very young children, but older ones usually prefer it. The models made with it are light, and when dry are difficult to break; this substance will also admit of a very high polish. It is, however, very difficult to prepare. Besides the above, modelling wax, putty with the smell taken from it, or gutta percha can be used. The gutta percha is certainly durable, but this is almost all that can be said for it, as it possesses little or no beauty, and as it must be made and kept soft while being worked, by being constantly dipped in hot water, it is impossible for young children to use it, and it is indeed so tough and sticky that it is quite uncomfortable to work with the fingers. We have mentioned these substances (adds the lady) as they are occasionally used, but clay or putty will be found to answer every purpose."

Our proposed pupils would not, however, be quite so nice about the material—only the further removed from the abortive mud or dirt pie of time honored (juvenile) antiquity—the better. Now, then, our modelling commences simply with taking a small piece from off the large ball of clay and rolling it round. That is a simple process. Well, another and smaller piece may next be taken off and also rolled round—that is equally simple; but, in fact, the whole stages of elementary modelling are perfect simplicity; for, when these two round bits of clay are placed one on the top of the other, and the top of the smaller and upper ball marked with a cross by the modelling knife,*—the incipient artist comprehends immediately that his first effort of genius has been accomplished, —he has modelled a loaf of bread! After that, he may venture on modelling a bird's nest,—by taking a large piece of clay, rolling it round between the hands, and then passing a finger into the centre of the ball so as gradually to increase the width and depth of the hollow. The sides and top of the nest being then pricked over with the point of the modelling-knife, some small pieces of clay rolled up and dropped into the nest represent the eggs. The aspiring artist is now prepared to attempt animated nature. With the utmost ease he may model a swan or a duck.

We need not go minutely into what seems almost intuitive, but the first notion of every one by whom this process, simple as it is, has not been carefully examined, is that the difficulties of executing artistic models of anything are infinitely greater than there is ever any chance of their being found. The rudimentary operations now explained are capable of being indefinitely extended, not only from a loaf of bread to a bird's-nest, and from a bird's-nest to a basket of flowers; but the variations of floral structure present themselves in turn for study, and it being once found out how slightly a bluebell differs from a primrose, the distinctive characteristics of every flower that grows will, by the dawning intelligence, be ultimately detected and copied.

There is just one other illustration derived from the Kinder-Garten amusements which we would seek to illustrate, as it is sure to prove popular round the cottage hearth, when brushed up and warmly glowing, as the oil lamp sparkles in the eager eyes of the pleased group assembled round to reproduce the fancy structures about to be noticed. This is called pea-work. It cannot be pretended that it has a bearing of equal importance to the art of modelling, or that it is anything more than mere play. But as play, it is of an innocent and imitative character, and commends itself, in its higher aims, even to the artistic consideration.

Models may be formed bit by bit, of any structure however complicated, by thin little bits of pointed stick inserted at their ends into two peas, which afford, of course, the means of jointing on to any others in almost any direction. Architectural models are most readily copied from an engraving.

By introducing such amusements, the occupation that is secured for hours of relaxation is, therefore, greatly enhanced by their tendency to educate the constructive faculties and induce workmanlike accuracy and mechanical study. These hints are thrown out regardless of the sneer that may be expected at their frivolity. There is no doubt that such pursuits are frivolous; but there is as little doubt of the truth of the hackneyed adage, that "All work and no play makes Jack a dull boy." It is expressly as play, in contradistinction to work, that they ought to be introduced and promoted; and happy would it be for us if in all our frivolous and favourite amusements we could find the germs of usefulness and refinement as we do in these.

MARYLEBONE LITERARY AND SCIENTIFIC INSTITUTION.—On the 16th December a well-attended meeting was held at this Institution. Lord Fermoy was in the chair, and, in his opening speech, said the object of that meeting was, by public subscriptions, to raise funds to take the Institution out of its difficulties. The secretary read the report of the committee, who said they very much regretted that, unless support were given them, they should be obliged to close the Institution; and, further, that the President (Sir Francis Goldsmid) had lent them £500, and promised to give it to them if £500 more could be raised, and they had therefore resolved to call two meetings for the purpose of soliciting assistance from the public. One of the speakers observed that books were at one time the strength of these Institutions, but there had been a great change; the circulating library of to-day was not the same as that of thirty years ago. The committee of the Institution had decided to add 7,000 new books to the 7,000 old if the Institution were kept open.—Serjeant Parry proposed a resolution tendering Sir Francis Goldsmid, the president of the Institution, hearty thanks for his offer. He believed that this Institution was the oldest of its kind, except the London Mechanics' Institution. About £200 was subscribed at the meeting.

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* The modelling-knife is a piece of hard polished wood, 4 inches long; one end flattened and slightly rounded, and coming to a point at the other.

Richmond Young Men's Society.—A *conversazione*, to celebrate the opening of the new rooms in George-street, was held on the 1st, 2nd, and 3rd December. On each evening the rooms were crowded. W. J. Maxwell, Esq., procured the services of a gentleman from the Polytechnic Institution with the piping bullfinch which created such a sensation at the International Exhibition in 1862. There was also a fine exhibition of valuable paintings, lent by the residents in the neighbourhood, and a collection of antiquities, arranged in periods. A paper was read by W. Chapman, Esq., descriptive of the Royal Palaces of Richmond from the earliest period of its history. The Rev. W. Webster, Minister of the Montpelier-row Chapel, Twickenham, read a paper on "Brotherly love towards each other," and the Rev. G. S. Ingram, of the Independent Chapel, Twickenham, also read one on "The mission of beauty in the works of utility." A concert was given each evening in the large room.

South Staffordshire Educational Association.—The committee have recently decided to admit Working Men's Clubs of the district into Union with the Association for General Purposes, at a nominal subscription of four shillings per year, and have also decided to appoint a paid examiner in connection with the examinations of the Central Committee, instead of trusting to honorary services as heretofore. The night-school movement in South Staffordshire is rapidly extending, no less than twenty additional schools having been admitted into Union this season. The principal feature of Institution work appears to be the very general substitution of penny readings and entertainments for ordinary lectures, which are said to be inadequately supported. The third series of Saturday Evening Concerts has been commenced at Wolverhampton, and the performances are quite as popular as in former years. The Willenwall Institute Readings are also remarkably successful. At the Young Men's Christian Institute, Wolverhampton, a recreation or "club" room has been added. It is proposed to have, in addition to games, social meetings, and musical gatherings weekly. At Wednesbury, Mr. James Russell is erecting, at the Crown Tube Works, an extensive building, which will form an Institution for his numerous workpeople. It will contain a large lecture and concert hall, reading-room, library, and two rooms for night-school purposes. At Dudley, the Committee of the Mechanics' Institution are preparing for the opening of the new building on the 29th instant, when the Earl of Dudley, Lord Lyttelton, Lord Lichfield, and others, will take part in the proceedings, which will be followed by a bazaar in aid of the building fund. This building is by far the most commodious and extensive one, for special Institution purposes, which South Staffordshire can boast. In addition to the usual rooms there is a large public hall, a lecture-room, a laboratory, well-stocked geological museum, and suitable class-room and attendants' apartments. The total cost will be between five and six thousand pounds.

Fine Arts.

SCHOOLS OF FINE ARTS IN PARIS.

The following documents relating to the School of Fine Arts in Paris, which has just been completely reorganized, have a special interest at the present time, whilst the reform of the Royal Academy is under discussion:—

Paris, 14th Nov.

Sire,—In connecting Fine Arts with the administration of your household, your Majesty wished to show all the interest you take in them; you have brought them so near the throne as to give them a personal attention. The first question which has called for the solicitude of your Majesty, and for which you have ordered an examination, concerns the organization of the Imperial Special School for Fine Arts, which takes its origin from 1819, and has ceased to harmonize with the advance of ideas and the wants of the present time. I have the honour to submit to your Majesty a proposed decree, which, separating the administrative departments from those for instruction, reconstitutes this establishment upon new and normal bases, of which the principal arrangements will in the end do away with privileges and restrictions incompatible, in the present day, with the liberal principles by which your Imperial Majesty's Government is directed. The report which has been referred to me by M. the Superintendent of Fine Arts, and which I have placed before your Majesty, contains all the necessary explanation for the appreciation of the scope and nature of these innovations. I approve of all the conclusions in this, and I pray your Majesty to affix your signature to the annexed proposed decree.

(Signed) Vaillant (Marshal.)

Napoleon, by the grace of God and the goodwill of the nation, Emperor of the French.

Greeting to all present and to come.

Read the order of the Republican Government, dated 3rd *Pluviose*, 11th year (22d January, 1803).

Read the Royal ordinance of the 4th August, 1819.

Upon the report of the Minister of our Household and of Fine Arts, have decreed and do decree what follows.

Imperial and Special School of Fine Arts.

Art. 1. The administration of the Imperial and Special School for Fine Arts is confided to a director appointed for five consecutive years by the Imperial decree. The director is the immediate head of the staff of the school; he is alone charged with the carrying out of the ministerial decisions and administrative rules. He corresponds with a superior office, concerning the business of his department. All the expenses must be authorized by him, within the limits, and according to the conditions laid down by the Minister. He watches these expenses and controls them, and causes vouchers to be established, keeping within the rules of the public account.

He enjoys a salary of 8,000 francs (£320). In case of illness or holiday his place is filled up by a person nominated by the Minister.

Art. 2. The administrative staff comprehends—a secretary, an accountant, a keeper of models and objects of art, and a librarian.

The staff for instruction comprehends—professors for courses, professors chiefs of studios. All are named by the Minister as well as those employed in the service.

The provisions of the Law of 9th June, 1853, for civil pensions are applicable to the whole staff of the school except the professors, chiefs of studios.

Art. 3. The professors for the courses receive an annual salary of 2,400 francs (£96). In case of illness, or absence, they are replaced by a person chosen by the Minister. The salary is then divided between the substitute and the professor.

Art. 4. The titles and privileges of the present professors and those who are superannuated are suppressed; nevertheless, the professors who are at present in possession of the superannuation will preserve, under the report of the salary, the advantages for them resulting from the 9th Article of the rule annexed to the ordinance of the 4th August, 1819.

Art. 5. The professors chiefs of studios, independently of the localities which are conceded gratuitously to them for the installation of their studios, are remunerated by means of indemnities worth about 2,400 francs (£96) a year. They cannot take part in the Superior Council for teaching which is established near the school, as will be shown in the second chapter.

Art. 6. The professors do not live in the school.

Instruction.

Art. 7. In connection with the school a Superior Council is established, which is composed of—a superintendent of fine arts—president; a director for the administration of fine arts—vice-president; two painters, two sculptors, two architects, one engraver, and five other members, named by the Minister.

The Superior Council chooses its secretary from the members of the Council. The members of the Superior Council for Instruction, with the exception of the superintendent of fine arts, and the director for the administration of fine arts, are renewed by one-third at the commencement of each academic year. The members leaving office can be elected again. The functions of the Superior Council are gratuitous.

Art. 8. The imperial and special school for fine arts is entirely devoted to the teaching of painting, sculpture, architecture, and engraving, in copper-plate, medals, and precious stones.

Art. 9. The following courses are given by the staff of the school:—

1. History of art and æsthetics. 2. Anatomy. 3. Perspective. 4. Elementary mathematics. 5. Descriptive geometry. 6. Geology, elementary physics, and chemistry. 7. Administration and book-keeping, construction and application in work-yards. 8. History and archæology.

Art. 10. The power of giving lectures temporarily in the rooms of the school can be accorded to a person not on the staff of professors, so long as the subject of the lecture is connected with the study of fine arts and the use of it is recognized by the Minister.

Art. 11. The daily exercises prescribed by the 3rd Article of the rule annexed to the ordinance of the 4th August, 1819, are replaced by works executed by the students in the studios. For this purpose, attached to the school, are—Three studios for painting, three studios for sculpture, three studios for architecture, one workshop for engraving copperplate, one workshop for engraving medals and precious stones. These workshops and studios are directed by artists who hold the title of professors, heads of studios, as has been stated in Article 2.

Art. 12. Every three months the director receives a report from the professors, heads of studios, on the progress of their pupils. These reports are communicated to the superior council. The council informs the minister of those students who, having distinguished themselves, seem to him to deserve either prizes or encouragements.

Art. 13. The obligations are:—That all the pupils of the school attend the courses of history, æsthetics, and of archæology. That all the pupils who learn painting, sculpture, and engraving, attend the courses of anatomy and perspective. That all the pupils learning architecture attend all the courses except anatomy.

Admission of Students.

Art. 14. The candidates who wish to go through the courses of the school ought to forward their names to the secretary, certify to their being French, and be between the ages of 15 and 25. Strangers can exceptionally, and with the consent of the minister, be admitted to the course.

Competition for the great Rome Prizes, and for Laureats.

Art. 15. The competitions for the great Rome Prizes are open to the Imperial and Special School for Fine Arts. All artists, from the ages of 15 to 25, whether pupils or not at the school, can compete for the great Rome Prizes, after having succeeded in two preliminary tests, on the condition that they are French. After two preliminary tests, ten candidates will be admitted to compete for the prizes for painting, sculpture, architecture, and engraving on copper-plate, medals, and precious stones. For the first three sections above named, there will be an annual competition; for the fourth, one every two years; and for the fifth, one every three years.

Art. 16. The programme of the preliminary tests and the definite competition is drawn up by the superior Council for teaching, instituted by art. 6; the results of the tests and the competition are decided by a jury composed as follows, of—Nine members for the section of Painting, nine members for the section of Sculpture, nine members for the section of Architecture, five members for the section of Engraving on copperplate, five members for the section of Engraving medals and precious stones. The jury will be drawn by lots, from a list, which will be prepared by sections and presented by the superior Council. This list, having been checked by the Minister, will be inserted in the *Moniteur*. The juries of each section will only decide at the competition of the section for which they have been named.

Art. 17. One prize only will be awarded in each section.

Art. 18. The provisions of paragraph 6 of the 14th article of the law for recruiting for the army, are, and still remain, applicable to the candidates who take the great prizes.

Art. 19. For the future, the candidates who obtain the great prize in their section, and who are sent to Rome, will only receive pensions for four years. They are obliged to stay at Rome two years at least; for the other two years they may, if it is convenient, and they like to, devote them to instructive journeys, informing beforehand the superior administration of their intentions. The engravers of medals and precious stones enjoy the pension only for three years, and they ought to remain at Rome for at least two years.

Art. 20. The Director of the Imperial Academy of France at Rome sends a report, every six months, to the Minister, of the works and degree of instruction of the prizemen.

General and Transitory Arrangements.

Art. 21. The ministerial orders determine:—

1. The conditions for the admission of students into the studios of the Imperial and Special School for fine Arts—the maximum length of their stay at the school—the commencement of the courses—the number of lessons—and the details relative to teaching.

2. The relative measures for the studies of the pensioners—their travels—the obligations they have to fill up—the mode of judgment or the appreciation of their works.

Art. 22. The candidates actually in possession of the title of pensioners of the Government will always preserve their rights in what concerns the length of their stay at the Imperial Academy of France at Rome, but they will be put under the regulations of the 21st Article as above.

Art. 23. The provisions and ordinances and past rules are repealed as far as they are contrary to the present decree, which will come into force 1st January, 1864, and which the Minister of our Household and of Fine Arts is instructed to carry into operation. This decree will be inserted in the *Bulletin des Lois*.

Done at our Palace of Compiègne, the 13th November, 1863.

(Signed) NAPOLEON.
(Counter-Signed) VAILLANT.

NAPOLEON, by the Grace of God, &c., &c.,

Read the Imperial Decree dated this day, relating to the organisation of the Imperial and Special School for the Fine Arts.

At the proposition of the Minister of our Household and the Fine Arts.

Decreed and do decree the following:—

Art. 1. M. R. Fleury, Member of the Institute, is nominated for five years Director of the Imperial School for Fine Arts.

Art. 2. The Minister of our Household and of the Fine Arts is charged with the execution of the present decree.

Done at our Palace of Compiègne the 13th November, 1863.
(Signed) Napoleon.
(Counter-Signed) Vaillant.

Precis of a letter from the Comte de Nieuwerkerke to the Marshal of France.

Referring to the old system by which the Imperial and Special School for Fine Arts was carried on, the following suggestions are now offered:

1. The creation of an office of director in the school.
2. Reform in the system of nomination of professors.
3. Creation of new professorships for painting, engraving, &c.; also of preparatory studios directed by professors chosen by the administration.
4. Opening of courses, gratuitous to the School for Fine Arts, given by every person presenting a programme to the administration, which promises useful instruction.
5. An Institution in connection with the School for Fine Arts, and a superior Council for Instruction.
6. Suppression of preparatory tests.
7. The appointing of the limit of the age to 25 complete years, for the competitions of the great prizes.
8. Suppression of the second prizes.
9. Reduction to four years of the pension awarded to prizemen, of which two years must be passed in Rome and two others in travelling.
10. Suppression of the great prizes for landscape painting.
11. Augmentation of the pensioner's superannuation.
12. Introduction of special jury for judging at the competition for the great prizes.

The late William Mulready, R.A.—The Memorial Committee have resolved to recommend to the subscribers the following plan:—First, to erect a suitable monument over the grave of the artist at Kensal green; secondly, to offer a bust of him to the Trustees of the National Gallery or of the National Portrait Gallery; and, thirdly, to devote any surplus to the establishment of a Mulready Prize to students.

South Kensington Museum.—Mr. Godfrey Sykes and his assistant have been busy during the autumn in decorating parts of the new courts and galleries, which will be re-opened to the public during the Christmas holidays.

Manufactures.

Porcelain Thermometers.—An improved porcelain thermometer, manufactured by Messrs. Frankham and Wilson, was laid on the table at the last evening meeting. In ordinary thermometers the tube is partially let into a groove, so as to bring the column of mercury as near as possible to the graduated scale, but as this cannot conveniently be done in a porcelain instrument, the tube is flattened, and increased facility is thus given for reading off the temperature indicated. In this instrument the scale is in each case graduated to the tube.

Production of Cast-steel directly from Pig-iron.—The foundation of this new method is the influence of steam on a thin stream of pig-iron. If we take an iron tube of a certain diameter with sides of the necessary strength, form a ring out of it, and fix on its circumference, towards the centre, three or more tubes, we have a tube ring with three or more radii. The ring is made fast to the tubular pipe; the ends of these tubes, which are open, do not quite reach to the centre of the ring, and have, therefore, between the ends an empty space, in which the pig-iron is allowed to flow in a stream of a certain strength. The steam let into the boiler from the tubular pipe flows out of the openings of the three tubes, and operates directly upon the pig-iron. It is said that the oxygen of the steam oxidises the carbon of the pig-iron, the silicium, a portion of the sulphur, phosphorus, and other impurities in the pig-iron; the hydrogen combines with the carbon, sulphur, phosphorus, arsenic, and other bodies, with which it forms combinations of hydrogen. The carbonised and purified metal falls into the crucible or other vessel placed immediately under the apparatus. The metal obtained contains impurities, and must therefore be smelted in crucibles in a blast or reverberatory furnace. This is the essential part of the process. Now arise the questions:—Is it possible to obtain steel in large quantities by this method; will it be of the same quality as the small quantity obtained on trial; and, if it is possible, at what price can it be obtained? In answer to these questions Cazanave asserts that by his method steel can be obtained in great quantities, not inferior to the best steel, and proportionately cheaper; for his best quality steel can be obtained for £18 per ton. This is difficult to believe, but the inventor affirms that it is so, and at the same time warrants the excellent quality of his steel. In the present mode of obtaining steel, good iron must be used which is cemented, and the cemented iron, that is the steel, is smelted in crucibles. By Cazanave's method cementation of the iron is avoided, so that the cast-steel may be obtained in unlimited quantities. If this new method turns out practicable, it will be possible to work up the whole daily production of a blast-furnace into steel. For this only the apparatus is required, which is not very costly, and which would be erected near the blast-furnace and stream of pig-iron. The stream would be divided into rays of the necessary strength, and each one directed into an apparatus. By Bessemer's process about ten tons of steel are obtained per day at Sheffield, while by Cazanave's method between sixty and seventy tons per day could be obtained, and a blast-furnace is being erected at Charleroi which will produce about seventy-four tons per day. The samples of steel furnished by this new process are reported to be very good. They were obtained from pig-iron smelted with coke, but it is supposed that charcoal pig-iron would give better results.

Preservation of Corn.—An experiment has been made in Paris for the preservation of corn from fermentation and the attack of insects, by enclosing it in a metal vessel and exhausting the air. Ten hectolitres of wheat were placed in the vessel, and the air having been exhausted, the vessel was opened after fifteen days, and the weevils, which were seen quite lively when the wheat was placed in the vessel, had quitted their cells and were dead. They were warmed, but did not stir. Being placed on white paper, they were crushed and reduced to powder, without leaving any stain on the paper. From various experiments made on wheat under glass, it was found that the weevil retains life longer than any other insect when deprived of air.

Influence of Oxygen in Wine-making.—At a recent meeting of the French Academy of Sciences, M. Pasteur communicated a paper "On the Influences of the Oxygen of the Air on Vinification." According to the author's researches, the must of grapes contains no oxygen; the only gases he found were carbonic acid gas and nitrogen. As, however, oxygen is necessary to fermentation, which proceeds more rapidly in proportion to the amount supplied, M. Pasteur proposes to aerate the must by means of bellows, or otherwise. The author considers that oxygen is the active agent in "vinification" as well as in fermentation, and that, in fact, it converts new wine into old. Its action, however, must be prolonged, otherwise the ill effects described by Berthollet will be produced. M. Pasteur points out that the larger the casks the longer are the wines in coming to maturity, and the bottling of wines, by diminishing the aeration, prolongs the keeping.

Pigment and Writing Ink.—Mr. Thomas de la Rue has patented the use of aniline dye waste grounds, with carbon and other ingredients, with the addition of glycerine and gum tragacanth, in the preparation of inks. For other purposes of a similar character he uses gluten dissolved in acetic acid, and a solution of the drug salep.

Commerce.

Sugar Duties.—The *Overland Commercial Gazette*, Mauritius, 6th November, says:—"The movement which is taking place in England in favour of the equalization of the sugar duties is seen with much satisfaction here, and with the powerful aid of the *Times*, which is brought to bear on the question, we have good reason to hope that it will obtain a favourable solution. The injustice of the present differential duties is clearly exemplified here. We have about one hundred estates with vacuum apparatus, all of which manufacture a superior kind of sugar fit for consumption. Scarcely any of this sugar is sent to England, because other markets, where more equitable tariffs exist are disposed to pay better prices for the better article. It is very fortunate for Mauritius that Bombay has become a market for fine crystallized vacuum sugar. otherwise we should have been dependent on Australia alone, which could not take all of that quality made. Nothing would have remained but to send it to Europe, where the higher rate of duty would reduce the net price to that of inferior quality. In this position of things all further improvement in manufacture is checked, but if the duties were to be equalised, no pains, expense, or skill would be spared to produce sugar fit for consumption without any further process; and to so manufacture what is termed the 'sirop,' or second and third boilings, as to improve it in colour, grain, and purity. With an equalized duty, all sugar would be made by the vacuum process; it is as cheap a system of manufacture as the old-fashioned one still adopted on many estates, and is more economical. There can be no doubt of the economy, for the process of improving and refining in Europe must add considerably to the cost. But instead of improving, we are encouraged to retrograde, under the present duties. Deprive us of Australia and Bombay as markets, and we should be obliged to study to reduce the quality of our sugar, so as to gain for it admittance into the European markets at the lower rates of duty."

Silk.—The last accounts from the silk market of Aubenas, in the department of the Ardèche, state that there is still a great deficiency in the supply of raw silk, holders not being inclined to sell at the present price. The markets of Joyeuse are rather better supplied. Silk grown at Broussa has experienced a decline.

Obituary.

The Venerable Richard Lane Freer, D.D., Archdeacon of Hereford, born February 10, 1806, died August 11, 1863, was son of the Rev. T. Lane Freer, M.A., Rector of Handsworth, Staffordshire, and a descendant in direct line of that Miss Lane, sister of Col. Lane, who effected the escape of Charles II., after the battle of Worcester, by carrying him behind her on horseback to the neighbourhood of Bristol. Archdeacon Freer was educated at Westminster, whence he went to Christchurch, Oxford, where he graduated as B.A. in 1828. In 1830 he was ordained Deacon by Bishop Cornewall, of Worcester, and the next year Priest. He took his degrees of M.A. in 1834, B.D. in 1839, and D.D. in 1858. In 1838 he was presented to the Rectory of Bishopstone-cum-Yazor, in Herefordshire, by Sir Robert Price, Bart.; in 1847 to a prebendal stall in Hereford Cathedral, by Bishop Musgrave; in 1852 to the Archdeaconry of Hereford, by Bishop Hampden; and in 1861 to the Prælectorship of Hereford Cathedral, by the Dean and Chapter. He was a Freemason and Deputy Provincial Grand Master of Herefordshire, and was a magistrate for the County of Hereford. He published in 1832 "A few plain words on the Sacraments of the Church of England;" in 1837, devotional hymns, three single sermons, and his Primary Charge in 1852. He married, in 1848, the daughter of the Rev. John Clutton, D.D., Canon Residentiary of Hereford Cathedral. He restored the church of Bishopstone, and beautified with oak carving and painted glass the Church of Yazor, and built the spire. He was elected a member of the Society of Arts in 1853.

Mr. Godfrey, Bandmaster of the Coldstream Guards, died recently. He had filled this position for nearly forty years. Some of the most popular instrumentalists of the day had been under his tutorage. Mr. Godfrey was in his 75th year. Members of the Society will remember how pleasantly the performances of the band under his direction have enlivened our *conversazioni* at the South Kensington Museum.

Captain James Johnston McCleverty, C.B., R.N., died at Florence on the 1st of March, 1863. He was the youngest son of Major-General Sir Robert McCleverty, C.B., K.C.H., and grandson of Captain William McCleverty, R.N., of "Glynn," near Larne County Antrim, who went round the world with Lord Anson, and died at Waterford, in command of the West Coast of Ireland, in 1779. The subject of this notice joined H.M.S. *Hussar* on the 6th of April, 1823. In 1826 he joined the *Asia* under Sir Edward Codrington, and was present at the battle of Navarino. He afterwards was with Sir Pulteney Malcolm in the *Britannia*. At the special request of King William IV. he was made lieutenant, and in 1833 was appointed to the *Castor*. In 1835 he joined the *Etna* as first lieutenant, on the Coast of Africa station. In 1839 he was lent, by the Admiralty, to the Indian Government, and proceeded on a secret mission to Calcutta, from whence, in 1840, he joined Admiral Sir William Parker in China, having been given the command of the *Phlegethon* by Lord Ellenborough, and was made commander for the action he fought off Ko Tee Point in 1841. In 1846 he was appointed to command the *Polyphemus*, and received his post-rank for the action and recapture of the *Three Sisters* from the "Rif" pirates on the 8th November, 1848. In 1853 he was appointed to command the *Terrible* during the Russian war in the Black Sea. For his services here he received the C.B. The late Lord Lyons wrote of him to the First Lord, "He is ubiquitous and his worth is equalled by his modesty." In 1858 he was appointed to command the *Cambrian*, and proceeded to China, where his services procured him the "good service pension," and in 1861 he became Commodore in the Indian Seas. He was seven times mentioned in the *London Gazette*. He was elected a member of the Society of Arts in 1862.

William Pierce, of Jermyn-street, St. James's, was born at Benthall, Shropshire, April 10, 1799. He devoted his whole life to improvements in warming and ventilation, more especially in relation to the cottages of the poor. On these subjects he published several small treatises, one of which was dedicated to the late Earl de Grey, who had been for thirty years his warm supporter. Mr. Pierce received the silver medal from the Society of Arts for the Pyro-Pneumatic Stove-grate, invented by him in 1848. He died at his residence, Belsize-road, Hampstead, October 1, 1863. He was elected a member of the Society of Arts in 1849.

Publications Issued.

Treatise on Mills and Millwork, Vol. ii. On machinery of transmission, and the construction and arrangement of mills, viz., wheels, shafts, and couplings; engaging and disengaging gear; mill architecture; also corn, cotton, flax, silk, and woollen mills; with a description of oil, paper, and powder mills, including a short account of the manufacture of iron. By William Fairbairn, LL.D., F.R.S., with plates and wood engravings. 8vo., price 16s.—(*Longman.*) The first part of this work gave a succinct account of the experience of nearly fifty years in the profession of a mill architect, millwright, and mechanical engineer. In this volume the author has endeavoured to follow up more in detail the principles of construction and other serviceable data. On prime movers, as comprised in water wheels, turbines, steam engines, &c., the reader is referred to the first part of this work, the present volume being chiefly directed to what is known by the name of mill gearing. It includes an elaborate treatise on wheels; a chapter on the strengths and proportions of shafts, couplings of shafts, engaging and disengaging gear, and those connections by which motive power may be conveyed to a considerable distance. A short treatise on mills and mill architecture is given. The application of architecture to mills was unknown or greatly neglected until late years, when a few examples of architectural construction were afforded by the introduction of slight cornices and pilasters, showing that it was possible at a small cost to relieve by light and shade the monotony of a large brick surface. This, to some extent, introduced a better style of building, and on this subject a few examples have been given. Corn mills are specially treated of, and as these constructions are chiefly in the hands of the millwright, the author has carefully directed attention to the buildings as well as the machinery. A description is given of the floating mill erected for the Government during the late Crimean war, with numerous details of elevators, Archimedean screw, creepers, &c. Four chapters are devoted to mills for the manufacture of textile fabrics. A description is given of the different processes as they exist in each kind of manufacture, while separate chapters are devoted to oil, paper, and powder mills.

The History of Newfoundland from the Earliest Times to the Year 1860, by the Rev. Charles Pedley, of St. John's, Newfoundland. 8vo., with a large map, price 15s.—(*Longmans.*) The author had access to the colonial records, and has endeavoured to give everything of importance that can throw light upon the growth of the summer fishing station into a thriving colony. While he has endeavoured to relate impartially the long struggle between vested interests and what may be called the natural law of settlements, the peculiar nature of the sources from which Newfoundland derives wealth and importance is shown to have given rise to international rivalry and exciting disputes, not yet by any means settled. The volume is completed by several appendices, embodying antiquarian details, and the most recent commercial and social statistics of the island.

The Yard, the Pendulum, and the Metre, considered in Reference to the Choice of a Standard in Length, by Sir John Frederick William Herschel, Bart., K.H. (*Longmans.*) The object of this essay is to set forth the several conditions which any standard or typical unit of length which shall be assumed as the basis of a system of measures and weights intended to be national, and which may justly claim to be universal, ought to fulfil; and to compare with their conditions our actual standard, the French metre now in use, and the length of the pendulum which has been often proposed as a natural unit of length. The inquiry Sir John Herschel divides into two questions—what is intrinsically the best and most available unit of lineal measure; and what system of numerical multiplication and aliquot subdivision of such unit for measures of length, and of its derivative units of area, of capacity, and of weight; for these he considers all refer themselves naturally to the unit of linear measure, or ought to do so. In effecting a practical change, it is evident we may resolve with logical consistency to put aside our present system altogether, and adopt the metrical one in preference, or we may retain the present fundamental foot or yard, and decimalize our system of denominations; or by a slight, and, practically speaking, imperceptible change in our present standard, bring it into conformity with our views of theoretical perfection. We may, too, retain all existing denominations as far as convenient, and superadd by permissive legislation a decimal system for facility of calculation, relying on its practical utility for driving out the old system with which it would be brought in contact. This last is the course Sir John Herschel prefers. He, however, reviews the whole subject and the various proposals that have been put before the world. In the lineal dimensions of the earth on the one hand, as the linear measure of its attractive force embodied in the pendulum on the other, Sir John considers the two only available sources for a universal and invariable standard; the French, after considering both, threw aside the pendulum in favour of the metre, or the ten-millionth of the meridian quadrant; while the English, by Act of Parliament, in 1824, repeated the old standard of an organic type, and in effect adopted the pendulum as their ultimate resort. The objection to the pendulum lies in the uncertainty which must always prevail as to the true length of that normal pendulum which shall stand equally related to the whole globe. The pamphlet discusses how far the French metre fulfils the requirements of scientific and ideal perfection, and points out the objections to it.

International Commercial Law, being the principles of Mercantile Law of the following and other countries, viz., England, Scotland, and Ireland, British India, British Colonies, Austria, Belgium, Brazil, Buenos Ayres, Denmark, France, Germany, Greece, Hanse Towns, Italy, the Netherlands, Norway, Portugal, Prussia, Russia, Spain, Sweden, Switzerland, the United States, and Wurtemburg. By Leone Levi, Esq., F.S.A., F.S.S., of Lincoln's Inn, Barrister at Law, Professor of the Principles and Practice of Commerce in King's College, London, Doctor of Political Economy, &c., &c. (*V. and R. Stevens, Sons, and Haynes, Bell-yard.*) Second edit., 2 Vols., Roy. 8vo., 35s. The first edition of this work obtained in 1854 the Swiney prize for the best work on Jurisprudence, at the hands of the Society of Arts and College of Physicians, and for the same work the King of Prussia and Emperor of Austria have awarded to the author their great Gold Medal for Science and Art, and now a new edition has been published with some essential differences. The first edition was in two vols., quarto, and it contained the Law of the United Kingdom at the head of each page, and the Codes and Laws of Commerce in parallel columns under it. This edition is in two volumes, royal octavo, and gives under each subject first, the British Law, next the Colonial, and next the Law of Foreign Countries. The present edition of the work contains, however, more branches of the law than were embraced in the first. The work is divided into thirty chapters, including the rights of commerce in time of peace and war, sources of commercial law, law relating to trading and traders, partnership, commandite partnership, joint stock companies, principal and agent, hiring and service, contracts, contract of sale, bills of exchange, cheques, banking, bank-notes, guarantees, negotiable instruments, patents, copyright, international copyright, trade marks, shipping, affreightment, carriers, marine insurance, general average, life, fire, and accident insurance, bankruptcy, foreign attachment, arbitration, and courts for the administration of commercial law, including tribunals of commerce. The Patent Law of different countries is fully described. There are first the British law, and afterwards the law of France, the United States, Germany, Austria, Belgium, Greece, Italy, Mexico, the Netherlands, Norway, Prussia, Poland, Portugal, Russia, Spain, and Sweden. The same fullness is observable upon the law of Copyright. The following extract from the preface indicates the exact nature of the work:—"It is the object of the present work to bring the fundamental principles of the law merchant, and the rules which have been superadded to them in different countries, into contact with each other; so that we may profit by each other's experience, and at the same time gather materials for the attainment of a solid and permanent progress in mercantile legislation. The chief advantage of such a work is the ready access it affords to the existing laws of the principal countries of the world. Other works on commercial law, such as Smith's or Chitty's, are confined to the laws of England. In this the field is enlarged, and the laws of foreign countries are put side by side with our own, because commerce is essentially international, and we are deeply affected by the laws and procedure of other states. Hence the distinctive title of 'International' Commercial Law. The science of international law has hitherto been limited to the political relations of states but recently not a few special conventions relating to commerce have been formed, such as those relating to international copyright, trade marks, and public companies. The portion, moreover, called private international law, contains provisions intimately affecting the interests of merchants, whilst a great branch of international law proper consists in settling the rights of commerce in time of peace and war, which forms the subject of the introductory chapter."

Notes.

The Death of M. Gounelle, one of the directors of the French telegraphic administration, and the author, conjointly in many cases with M. Blavier, of valuable contributions to the science of electro-telegraphy, occurred recently. M. Gounelle was indeed the father of electro-telegraphy in France; for in 1843, under M. Foi, then at the head of the administration, he constructed the first trial line from Paris to Rouen, and, M. Bréguet confirmed the observations of Steinheil relative to the expediency of using the earth for one-half of the circuit.

Telegraphic Improvements.—*Galignani* states that the new system of telegraphic correspondence established by the Bonelli Company between Machester and Liverpool has lately passed with success the ordeal of proof in France. The lines between Paris and Boulogne having been accorded to the Chevalier Bonelli, the new instruments were attached, and worked admirably during the period for which the wires were granted. The perfect clearness of the letters reproduced at a distance, the rapidity of the new system, which secures an average of more than 300 dispatches of 20 words per hour printed in duplicate, as well as the simplicity of the means employed, astonished all who witnessed these experiments. The inventor has received authority from the director-general of telegraphs in France to establish the "typo-telegraph" by way of test between the Bourse and the central offices, in order to see how far it may replace with advantage the system of couriers now in use.

Female Candidates for Examination.—The *Englishwoman's Magazine* says that the number of female applicants for examination in the papers which have been prepared for the Cambridge local examinations, is very large. There will be examinations both for senior and junior students. The former must be under eighteen and the latter under sixteen years of age. There is considerable difference between these examinations and those instituted by the Society of Arts. In the latter the certificates given are for excellence in distinct subjects; while in the Cambridge examinations the attempt is made to set up a general standard of education, and "for this," says the *Englishwoman's Magazine*, "we are exceedingly grateful." The university authorities, however, do not offer to women any degree, nor do they admit girls to the examinations, and all that has been done is to send to a committee of ladies and gentlemen copies of the examination papers, "for the use of some girls in London," while the Society of Arts places them on a par with the other sex, giving them the same opportunities of obtaining the prizes and certificates offered.

Correspondence.

Utilisation of Metropolitan Sewage.—Sir,—Mr. Thomas Ellis has proposed a plan to the Metropolitan Board of Works for utilising the drainage of the metropolis. The Society of Arts has in bye-gone days recognised the fact that this sewage question is one of deep interest; but the propositions which have hitherto come before you have all been plans for deodorising by chemical and other artificial means. Your Society has from time to time afforded the promoters of these schemes valuable aid, and they have been worthy of it, inasmuch as wherever the sewage of a large town has been so treated, the health of the inhabitants has greatly improved. In the town of Leicester, for example, they began in 1852 to reduce the sewage to solid cakes by the addition of lime, and I happen to have by me the statistics of the number of deaths which occurred during the three following years. In 1852, the deaths were 1773; in 1853, only 1680; in 1854, only 1580; and in 1855, only 1498; and this decrease in the number of deaths was with an increase in the population amounting to 4,000. I am informed, however, that although the great advantage of health was obtained, the solid manure did not turn out so useful to the farmers as was anticipated. We learn from this fact that sewage is spoiled by being dried or in any way solidified. In the progress of agricultural knowledge the following facts will be questioned by very few:—1st. That the metropolitan sewage is a manure valuable for all crops, if properly used. 2nd. That no advantage is gained from using the manure in immoderate quantities. 3rd. That it makes all the difference as to whether it is used in the liquid or solid form: in the solid form it is comparatively useless; in the liquid highly valuable. And in the common sense view of the subject the following facts will be admitted by very many:—1st. That the 266 million tons of the metropolitan sewage, distributed annually on the 20,000 acres of the Quicksands belonging to the Essex coast on the north of the Thames, cannot prove a desirable method to be adopted. It is doubtful whether sand possesses that wonderful deodorising power which is found to be the property of arable land, and the N., N.W., and N.E. wind will carry a detrimental air from this deposit to those who pass it in steam-boats, &c. Also it is probable that our Thames shrimp fishery would be injured, if not destroyed, by such an arrangement. It is apparent, therefore, to common sense, that this scheme, proposed by the Hon. Wm. Napier, and supported in 1851 by the Metropolitan Board of Works, will not fully answer the desired ends of promoting health and purifying the Thames. 2nd. Another common sense view of the subject is—that the ratepayers will be wronged and imposed upon if Sir Wm. Napier's plan is fully adopted. Of this fact some are becoming fully aware, and meetings are being held with a view to urge the Board of Works to consent to the question being referred to Parliament. A meeting of this kind was held recently at the Gladstone, Bishopsgate-street, convened by the Bishopsgate Ward Ratepayers' Association. The following sentiments are extracted from the resolutions carried unanimously at that meeting. 1st. "That this meeting, in view of the evidence laid before the Select Committee of the House of Commons on the Sewage of Towns, and of the analysis of the metropolitan sewage made by Messrs. Hofmann and Witt, is of opinion that the metropolitan sewage is a manure valuable for all crops, and that it can be profitably utilised." 2nd. "That this meeting is of opinion that the interests of the ratepayers and of the nation will be best promoted by the Metropolitan Board of Works at once entering into such an arrangement with Mr. Ellis as will admit of his taking this great question before Parliament." 3rd. "That this meeting is of opinion that the interests of the ratepayers require that Mr. Ellis's offer should be accepted, and that he has fully entitled himself to the confidence and support of the citizens of London." The plan which Mr. Ellis proposes is, that a company should be formed to dispose of this sewage by sale; and he offers the following guarantee, viz.: That he will undertake all the expense and risk of utilising the sewage, and to deposit in bank a sum of £60,000 for the preliminary expenses; and moreover that he will undertake to protect the ratepayers and the Metropolitan Board of Works, by a special Act of Parliament, from all risk or liability of every sort, and to divide equally with the ratepayers every shilling made by his company. With the most disinterested view to public benefit I should like to say more on this interesting, because important, subject; but for the present I will not trespass further on your space.—I am, &c., R. Dart.

The Metropolitan Sewage.—Sir,—I see by the resolutions passed, and the speeches made, at several recent meetings of metropolitan ratepayers, that "the analysis of the metropolitan sewage made by Messrs. Hofmann and Witt," and Mr. Ellis's interpretation of the estimate of those gentlemen, are adopted as a basis of the expectations entertained of the great pecuniary benefit to accrue to the ratepayers from the utilisation of sewage. Mr. Ellis maintains that the estimate of Messrs. Hofmann and Witt, of a little over 2d. per ton for the manurial value of the constituents in the metropolitan sewage, refers to the average of the normal sewage and the rainfall taken together. Accordingly, he takes 266,000,000 tons, the estimated annual amount with rainfall, at 2d. per ton; and on the assumption of this rate of value he holds out the pleasing assurance to the ratepayers that their moiety of the profit, arising from the adoption of his scheme of utilization, would be "an annual sum of not less than £700,000." I, on the contrary, have repeatedly maintained that it is perfectly clear, from the report of the Main Drainage Referees, embodying that of Messrs. Hofmann and Witt, that their estimate of 17s. 7d. per 100 tons, or a little ovor 2d. per ton, refers to the normal sewage without rainfall; and, accordingly, in calculating the total annual value they took into account only the amount of sewage exclusive of rainfall, which may be stated, in round numbers, as averaging only about three-fifths of the total quantity inclusive of rainfall. I further maintain that, especially under the then existing conditions, it would have been absurd in the extreme to attempt to determine the average composition of the sewage by the analysis of samples of the essentially variable diluted sewage inclusive of rainfall, unless indeed of specimens taken almost the year round. But all my appeals to the public document itself have been met by Mr. Ellis, and some of the advocates of his scheme, by contradiction, by irrelevant quotations from it, by pretty direct accusations of falsehood, and by unscrupulous and entirely unfounded imputations of unworthy and interested motive on my part in making the statements which it is alleged are untrue. I have thought it only due, therefore, both to the ratepayers, who are so much interested in the matter, and to myself, whose veracity and motive have been publicly called in question, to request statements for publication from the authors of the report. The following are copies of the letters which have been kindly furnished to me by Professor Hofmann, the surviving analyst, and by Captain Douglas Galton and Mr. James Simpson, C.E., the surviving Main Drainage Referees.

Royal College of Chemistry, Oct. 14, 1863.

My Dear Dr. Gilbert,—On referring to the report made by the late Mr. H. M. Witt and myself to the Main Drainage Referees in 1857, I find you are perfectly correct in stating that our estimate of 17s. 7d. for the manurial value of the constituents in 100 tons of the metropolitan sewage (equal to a little over 2d. per ton) is founded upon the analysis of samples of mean sewage taken from the Savoy-street sewer.

I also find that the amount of sewage which the samples in question were supposed to represent was, according to the information furnished to us by the Referees, taken at 95,000,000 gallons per day, and their report (p. 14) shows that this was the estimated amount of the dry weather sewage.

Reckoning the total amount of the normal dry weather sewage, in accordance with the above information supplied by the Referees, at 95,000,000 gallons per day, or 157,625,250 tons per annum, we arrived at £1,385,540 as the total annual value of the constituents of the metropolitan sewage.

You are at liberty to make any use you may like of this letter.—I remain, &c., A. W. Hofmann.

London, 4th December, 1863.

Dear Sir,—With reference to the question contained in your letter of 18th ult., we beg to state that the samples of sewage taken under our direction for analysis by Messrs. Hofmann and Witt for the purposes of our report on the Main Drainage of the Metropolis, were mean samples of *dry weather* sewage taken from the Savoy-street sewer in the manner described in the report, and, from the analysis of these samples, Messrs. Hofmann and Witt estimated the value of the constituents in the metropolitan sewage at 17s. 7d. per 100 tons, or about 2d. per ton. Their estimate refers, therefore, to normal sewage *without rainfall*.—We are, &c., Douglas Galton, James Simpson.

There is no doubt whatever, therefore, that Mr. Ellis has estimated the total sewage, with rainfall, at the value per ton fixed by Messrs. Hofmann and Witt for the sewage without rainfall, and that he has thus, so far as the value is determinable on such data, overstated it by somewhat more than the amount which he informs the ratepayers will be placed at the disposal of the Board of Works for the reduction of local taxation over the metropolitan area, provided his proposition for the utilisation of the metropolitan sewage be accepted.—I am, &c., J. H. Gilbert.

Harpenden, St. Albans.

Sugar in Dietaries—Sir,—In connection with Dr. Edward Smith's paper may I be allowed to draw attention to the anomalous position of sugar. Dr. Smith, of course, included it among the articles of food consumed by the working classes. Mr. Gladstone, in his recently republished speeches, thus states the policy of Sir R. Peel and himself:—"We have been desirous to lower the rates that press on the foreign articles of food, which enter largely, if not into the necessaries of life, at any rate into what may be called the luxuries or the comforts of the mass of the people." This policy appears now to be universally assented to, and to have been fully carried out with the single exception of sugar, and although sugar is not passed over in silence when remissions of duty are annually discussed in connection with the budget, it is only generally referred to as one out of many other items which it would be desirable to reduce in its turn, but the fact of its being the only article of nutritious food heavily taxed is seldom brought prominently forward. From allusions to it in the discussion on the last budget, the House of Commons appear to consider the chief use of sugar is to sweeten tea, at least one of the members for the City of London spoke as anticipating that cheaper tea would be the cause of any great increase in the consumption of sugar; and the fallacy of looking on sugar as an ingredient of liquids, instead of a very desirable and wholesome addition to solid food, appears to be the only reason why more attention is not paid to this single exception to the one great principle of free trade most universally accepted by all parties. There can be no doubt that a duty of about 25 per cent. materially interferes with the use of sugar among "the masses of the people." If it had been treated by the Chancellor of the Exchequer in the same category as rice, &c., probably its consumption in connection with cooked and preserved fruits would be doubled, with very considerable benefit to the consumers; and the very acceptable bounties bestowed on us by a beneficent Providence in our summer fruits, would minister alike to the health and pleasure of all, instead of, as at present, when eaten in a crude and partially ripe state, at once announcing their abundance in the weekly list of the registrar-general by characteristic diseases. The employment of sugar also in preserving animal food is no doubt greatly checked by the present heavy duty, whereas its use in this way might also be greatly extended, and not only make such food more palatable, but also more digestible and nutritious, while giving in addition its own very considerable amount of nutrition, instead of acting as salt does to abstract much of the nutritive qualities of the flesh, and in the large quantity used to preserve such food, contributing in itself nothing required by the stomach. In fact, there can be little doubt that were our national finances so re-arranged as to admit sugar at a very small duty, and a sufficient supply came into the market, in ten years such a revolution would be caused in the use of sugar as an important article of food, instead of as at present, a kind of condiment, that we should wonder so heavy a duty had been contentedly submitted to for so long a time.—W. Symons.

17, St. Mark's-crescent, Regent's-park.

Dislocations.—Sir,—In the account of a recent action against the London General Omnibus Company, it is stated that the plaintiff, who had dislocated his hip-joint, "was conveyed to the Charing-cross Hospital, where he remained six weeks; then he was seven weeks an out-door patient. He still suffers from an unreduced dislocation, and the leg is permanently shortened by nearly six inches." The jury found a verdict for the plaintiff, damages £800. My present object is, to inquire how it is that a dislocation of the hip-joint is still incapable of reduction, looking at the skill of our hospital surgeons, and the mechanical appliances available. Is it possible that such a hospital as the one above referred to can fail to possess such an apparatus as that of Dr. G. O. Jarvis, of Connecticut, United States, which was introduced into this country about the year 1847, and fully approved of at the time by Mr. Bransby Cooper and other authorities? The instrument was then stated to be capable of reducing any dislocation, from the throat to the hip-joint, and was also of great value in holding the limbs in position so as to enable fractured bones to be more perfectly set. I believe the instrument I refer to was deposited at the Society's house, and I shall be obliged if you can refer me to any printed account of the same.—D. T. S.

The Secretary of the Society of Arts adds:—The instrument was termed a "Surgical Adjuster," for reducing dislocations, &c., and is described in the Society's minute books as intended to set bones which are fractured or dislocated, to be applied to all the superior and inferior extremities, on the long or short bones, and for all fractures where the principle of extension and counter extension is required. The instrument consists of a case 13½ inches long, 1½ inch wide, and ½ inch deep, and is divided within by a partition running lengthwise, into two nearly equal spaces, the one square, into which a rack bar is to be received, the other round, in which is a female screw, and into which the male screw of the femur fork works; this screw is inserted at the upper end of the case, and is used to lengthen the instrument according to the length of the limb to be operated upon. Near the lower end of the case is a rachet wheel, 1¼ inches diameter, with a catch operating therewith. A pinion wheel is fixed on the same shaft as the rachet wheel, but inside the case, the cogs of the pinion wheel working into those on the rack bar. The shaft of the two wheels terminates in a square *hub*, to be received in a corresponding square sinking at one end of the lever, by which the motive power is effected for producing extension and counter extension; the rack bar is turned at the lower end at right angles to the main shaft, to which the bandages are attached. Forks of particular forms to suit different parts of the body, are made to fit on the top of the male screw; rolls of soft materials, belts, straps, pads, and an elongating double inclined plane, complete the instrument. In some cases of severe fracture the instrument is allowed to remain on the patient. When the bones are broken, the contraction of the muscles forces the ends past each other; this instrument is used to draw them back, and to do this in the ordinary way the surgeon requires several assistants, and it sometimes inflicts great pain. It is stated that if a surgeon uses this instrument he will require no assistance, and the whole operation is under his control. It is applicable to the oldest dislocation which it is safe to reduce; the belts and forks are adapted for all the limbs of the body. The instrument is left on in cases of fracture, but not of dislocation. Dr. Jarvis stated that he had used the instrument twice to reduce dislocations of the hip. The limb is perfectly free in its action when the instrument is applied. Evidence of the great efficiency of the instrument was given by Mr. Bransby Cooper and other eminent surgeons, and it was stated to be in use at Haslar Hospital, and also at the Royal Hospital at Greenwich. The Society gave its gold medal to Dr. Jarvis.

MEETINGS FOR THE ENSUING WEEK.

Tues. ...Royal Inst., 3. Prof. Tyndall, F.R.S., "On Electricity at Rest and Electricity in Motion." (*Juvenile Lectures.*)
Thur. ...Royal Inst., 3. Prof. Tyndall, F.R.S., "On Electricity at Rest and Electricity in Motion." (*Juvenile Lectures.*)
Sat. ...Royal Inst., 3. Prof. Tyndall, F.R.S., "On Electricity at Rest and Electricity in Motion." (*Juvenile Lectures.*)

Patents.

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From Commissioners of Patents Journal, December 18*th.*

Grants of Provisional Protection.

Blast cylinders—2902—W. H. Gray.
Boats, propelling—2820—D. Ford.
Buckles for braces—3081—J. H. Brierley.
Carding engines—3047—R. Riley.
Cartridges—2840—H. Gladstone.
Coal, etc., cutting—3034—T. Harrison.
Colouring matters—2892—E. C. Nicholson.
Colours, yellow and orange—3063—J. A. Wanklyn.
Combs—3053—T. Douglas.
Cooking apparatus—3043—E. Stevens.
Cotton gins—3079—W. Wanklyn.
Cranes—2814—J., J., and J. Booth.
Dissolving view apparatus—3089—P. H. Desvignes.
Door fastenings—3109—M. Hillary.
"Drifts," and apparatus for making them—2897—J. Eglin.
Elastic bands—3077—C. Brown.
Fabrics, woven, machinery for finishing or beetling—2799—J. Smith.
Fire-arms, breech-loading—2554—W. Fletcher.
Fires, apparatus for lighting—3024—T. Snook.
Furnaces, &c.—3105—J. Wright.
Furniture—2470—J. Mead.
Gas making—3029—H. Holdrege.
Gunpowder, granulating and drying—2230—T. B. Jordon.
Hand stamp for marking consecutive numbers—3065—A. J. Aspinall.
Hat or cap frames—2734—M. Luneau.
Heat, obtaining and applying—3057—W. Gorman and J. Paton.
Heating water, &c.—3069—F. Piercy.
Hoisting and lowering apparatus—2917—C. Stevens.
Iron fences, &c., connecting and sustaining the bars of—2978—J. A. R. Main.
Joints and catches for brooches, &c.—3067—A. Antill and W. Wilkinson.
Labels to packages, instruments for attaching—2925—W. E. Newton.
Mattresses, cork stuffing for, &c.—3099—A. V. Newton.
Moveable frames and surfaces, fitting—3025—J. Dales.
Mules, lubricating the shafts of the conducting pulleys of—3028—T. T. England.
Partridge canes, bending, &c.—3022—R. Lublinski.
Pencil cases, &c.—3071—M. Turnor.
Plumbago crucibles, &c.—3107—T. V. Morgan.
Projectiles for ordnance, &c.—3087—T. A. Blakely.
Railway breaks—3051—R. A. Brooman.
Railway crossings—3038—C. Cammell and W. Crompton.
Raising or removing grain—3101—H. Audinwood.
Reaping and mowing machines—3095—W. M. Cranston.
Sails, reefing—3035—H. D. P. Cunningham.
Ships of war—3036—C. Lungley.
Smoky chimnies, curing—3026—J. Capper.
Soap—3030—S. Trotman.
Watch case pendant—2943—C. Howard.
Wheels, tires, axles, and axle boxes—2896—W. B. Adams.
Wool carding—3091—H. Eastwood and B. Matthews.

Patents Sealed.

1514. J. Banwell.
1516. J. Newnham.
1523. W. Naylor.
1524. J. A. Sparling.
1525. J. L. Ganne.
1536. H. A. Bonneville.
1545. D. D. Kyle.
1547. R. Brownlee.
1550. C. Peterson.
1562. E. Wilks.
1563. A. Twaddell.
1567. L. A. Majolier.
1568. W. Rowan.
1575. J. Murray.
1576. A. R. Stocker.
1580. T. F. Parsons.
1588. W. Toovey.
1592. E. Myers and W. R. Williams.
1603. W. Kirrage.
1605. H. C. Lee.
1608. A. Tulpin.
1609. W. Clark.
1614. T. Dunn.
1639. J. H. Johnson.
1654. W. E. Newton.
1659. H. S. Warner.
1663. J. McDonald.
1672. A. and B. S. Gower.
1680. G. C. Collyer.
1721. M. A. F. Mennons.
1734. M. W. Ruthven.
1802. J. H. Johnson.
2039. H. A. Bonneville.
2352. T. and W. Marshall.
2459. J. Gibson.
2472. A. V. Newton.
2477. G. Parry.
2549. E. H. C. Monckton.
2593. R. Baillie.
2661. J. Marshall.